



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.         | CONFIRMATION NO. |
|---|-------------|----------------------|-----------------------------|------------------|
| 10/783,374  | 02/20/2004  | Sangkeun Rhee        | H0004297 (4760)             | 2395             |
| 7590  | 12/28/2005  |                      |                             |                  |
| Richard S. Roberts<br>Roberts & Roberts, L.L.P.<br>Attorneys at Law<br>P.O. Box 484<br>Princeton, NJ 08542-0484 |             |                      | EXAMINER<br>DOONER, CHARLES |                  |
|   |             |                      | ART UNIT                    | PAPER NUMBER     |
|   |             |                      | 1772                        |                  |
| DATE MAILED: 12/28/2005   |             |                      |                             |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |                                    |  |
|------------------------------|--------------------------------------|------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/783,374 | <b>Applicant(s)</b><br>RHEE ET AL. |  |
|                              | <b>Examiner</b><br>Charles Dooner    | <b>Art Unit</b><br>1772            |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) 36-42 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-42 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction to one of the following inventions is required under 35 U.S.C.

121:

- I. Claim 1-35, drawn to a multilayered film, classified in class 428, subclass 35.7.
- II. Claim 36-42, drawn to a process for forming a multilayered film, classified in class 264, subclass 173.12.

The inventions are distinct, each from the other because of the following reasons:

Inventions in Group II and Group I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the process can be used to make multilayered structures with other polymers, such as fluoropolymers.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Robert S. Roberts on November 16, 2005 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-35. Affirmation of this election must be made by applicant in

Art Unit: 1772

replying to this Office action. Claims 36-42 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### ***Drawings***

2. The drawings are objected to because the serial number of the application does not appear on the page. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either

Art Unit: 1772

"Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. The disclosure is objected to because of the following informalities: Prior art referenced in the specifications do not appear in the Information Disclosure Statements. Specifically, 5,087,677; 5,270,393; 5,371,158; 5,422,409; 5,439,973; 5,516,841; 5,569,711; 5,585,433; 5,876,814; and 5,880,241 on page 2 and 5, 139,878 and 4,677,017 on page 17.

Appropriate correction is required.

4. The abstract of the disclosure is objected to because the serial number of the application does not appear on the page. Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1772

5. Claims 1-5, 8-13, 16-17, 19-20, 21-23, 26, 28-30, and 32-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Hirose et al (5,532,030). Hirose et al (5,532,030) discloses a multilayer film (Col. 34, Lines 56-59) consisting of a polyolefin layer (olefin copolymer) (Col. 2, Lines 13-14), in this case preferably a polypropylene layer (Col. 31, Lines 29-31), and a thermoplastic layer, in this instance a cyclic olefin (cycloolefin) copolymer layer (Col. 1, Lines 59-664). Between said polyolefin and said thermoplastic is an adhesive tie layer (Col. 32, Lines 62-65) that comprises 60-98% by weight (Col. 33, Lines 42-46) of an ethylene/alpha olefin (Col. 33, Lines 6-9), where said ethylene/alpha olefin comprises and ethylene and an alpha olefin of 3 to 20 carbon atoms (Col. 33, Lines 16-18), and 2-40% by weight (Col. 33, Lines 42-46) of a tackifier (Col 33, Lines 26-29), where said tackifier is aliphatic hydrocarbon (Col. 33, Lines 30-34), which is a petroleum based polymer. Hirose et al (5,532,030) further discloses that the multilayer film can be prepared by co-extrusion (Col 34, Lines 33-35). The multilayer film can be uniaxially oriented (stretched) (Col. 34, Line 45), biaxially oriented (stretched) (Col. 34, Line 45), or a blown film (Col. 34, Lines 38-40). Hirose et al (5,532,030) discloses that the multilayer film can be formed (Col. 35, Lines 18-19) into articles, such as bottles (Col. 34, Line 59) or tubes (Col. 35, Lines 6-7), for the packaging of moisture sensitive products due to its moisture proof properties (Col. 34, Lines 66).

Regarding Claims 2-5, 22, and 32-35 Hirose et al. (5,532,030) inherently teaches a multilayer film comprising at least one layer on either the second surface of the polyolefin layer, the second surface of the thermoplastic layer, or

Art Unit: 1772

both since Hirose et al (5,532,030) discloses that the multilayer film can have further polymer layers of polymer materials (Col. 34, Lines 45-49), such as polyvinylidene chloride (Col. 34, Lines 46-47) or polyamides (Col. 34, Lines 47) attached thereon or laminated therewith (Col. 34, Lines 45-49).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirose et al (5,532,030) as applied to claim 1 above, and further in view of Tsai et al (2003/0008152). Hirose et al (5,532,030) teaches a multilayer film as described above. Hirose et al (5,532,030) discloses that the multilayer film can have further polymer layers of polymer materials (Col. 34, Lines 45-49), such as polyvinylidene chloride (Col. 34, Lines 46-47) or polyamides (Col. 34, Lines 47). Hirose et al (5,532,030) fails to teach the use of an adhesive tie layer to attach these additional layers as in claims 6-7.

Tsai et al (2003/0008152) discloses that it is well known in the art to attach additional layers of other polymers to a multilayer film with adhesive layers between polymer layers (Page 2, Para. 18, Lines 18-23) for the purpose of

Art Unit: 1772

obtaining the ability to vary the sequence of layers in the multilayer structure  
(Page 2, Para. 18, Lines 1-3).

It would have been obvious to one of ordinary skill at the time the invention was made to form the multilayer article of Hirose et al (5,532,030) with an adhesive tie layer taught by Hirose et al (5,532,030) in between the additional polymer layers as in Tsai et al (2003/0008152) in order to obtain the ability to vary the sequence of layers in the multilayer structure.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirose et al (5,532,030) as applied to claim 1 above, and further in view of Kawachi et al. (6,656,601). Hirose et al (5,532,030) teaches a multilayer film as described above. Hirose et al (5,532,030) fails to teach the use of an unmodified ethylene/alpha olefin copolymer.

Kawachi et al. (6,656,601) teaches that it is well known in the art to the use of an unmodified ethylene/alpha olefin for the purpose of having better melt tension and better moldability (Col. 9, Lines 23-26).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the adhesive tie layer in the multilayer film of Hirose et al (5,532,030) by substituting in an unmodified ethylene/alpha olefin copolymer in order to have a multilayer film with better melt tension and moldability.

8. Claims 15 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirose et al (5,532,030). Hirose et al (5,532,030) teaches the multilayer film as described above. Hirose et al (5,532,030) fails to teach the



Art Unit: 1772

adhesive composition range between 1-2% by weight and 40-60% by weight of the tackifier and the 50-60% by weight and 98-99% by weight of the ethylene/alpha olefin copolymer.

However, Hirose et al (5,532,030) discloses an adhesive composition containing 2% by weight to 40% by weight (Col. 33, Lines 42-46) of a tackifier (Col. 33, Lines 34-38) and 60% by weight to 98% by weight (Col. 33, Lines 42-46) of an ethylene/ $\alpha$ -olefin copolymer (Col 33, Lines 42-46) for the purpose of improving the interlayer bond strength.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine through routine experimentation the optimal amounts of said tackifier and said ethylene/alpha olefin copolymer depending on the end use of the product absent of showing unexpected results. See MPEP § 2131.03(II).

9. Claims 24-25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirose et al (5,532,030) as applied to claim 1 above, and further in view of Bennett et al. (5,583,192). Hirose et al (5,532,030) teaches the multilayer film as described above. Hirose et al (5,532,030) fails to teach the multilayered film being uniaxially oriented from about 1.3 to about 10 times in either its longitudinal or transverse directions as in claim 24, the multilayered film being biaxially oriented from about 1.5 to about 5 times each of its longitudinal and transverse directions as in claim 25, or the film being thermoformed as in claim 27.

Art Unit: 1772

Bennett et al. (5,583,192) discloses that it is well known in the art to orient (Col. 3, Lines 21-22) multilayer films comprising a cyclic olefin layer (Col. 2, Lines 61-62) and polypropylene layer (Col. 7, Lines 54-58) in the longitudinal and transverse directions from 1.1 to 10 times, either uniaxially (in each case) (Col. 8, Lines 34-37) or biaxially (Col. 8, Line 44), for the purpose of improving their mechanical properties (Col. 7, Lines 62-63). Bennett et al. (5,583,192) further discloses that it is well known in the art that the multilayer films comprising a cyclic olefin layer (Col. 2, Lines 61-62) and polypropylene layer (Col. 7, Lines 54-58) can be used for thermoformed components (Col. 8, Lines 50-51) for the purpose of reducing the brittleness of the film (Col. 1, Lines 59-62).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the multilayer film of Hirose et al. (5,532,030) through its use as a thermoformed article and with either uniaxially or biaxially orientation of the film in order to obtain a less brittle thermoformed articles with enhanced mechanical properties as taught by Bennett et al. (5,583,192).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Dooner whose telephone number is (571) 272-1646. The examiner can normally be reached on Monday-Friday from 9:00 to 5:30.

Art Unit: 1772

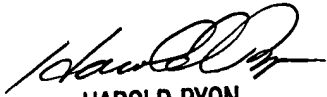
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Pyon can be reached on (571) 272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Charles Dooner  
Patent Examiner  
Art Unit 1772

12/23/05



HAROLD PYON  
SUPERVISORY PATENT EXAMINER  
1772

12/23/05